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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

PATEL, ASHOKKUMAR B

ART UNIT	PAPER NUMBER
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2154

DATE MAILED: 02/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .		Applicant(s)	
	09/750,217		KLAPPHOLZ, NICOLE	
	Examiner		Art Unit	
	Ashok B. Patel		2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-36 are subject to examination.

Response to Arguments

2. Applicant's arguments filed January 20, 2004 have been fully considered but they are not persuasive for the following reasons:

Referring to claim 1,

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Lotito et al. (hereinafter Lotito) (US 4,625,081).

In response to applicant's arguments, the recitation shared memory has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). However, Lotito teaches the system 100 that can be used in environments of large

number of peripheral devices and storage units. Thereby, it teaches the shared memory parallel processor computing environment. (col.19, lines 50-54). Lotito also teaches that each process requests of the processor hosting it the computational and other resources required for execution. (process requires the resources for a certain time until its execution is considered complete) (col.43, lines 62-64). REX manages the allocation of its processing resources to each process. (defining the execution time slice as required by the process) (col.43, lines 67-68 and col.44, lines 1-2, col.20, lines 33-44)). Lotito goes on teaching that the processor remains dedicated to executing that program until control is either voluntarily relinquished back to REX or some external hardware interrupt occurs. (col. 44, lines 8-11). Therefore, Lotito teaches of the choices that are afforded to the REX and the executing process whether to terminate the process before the completion of it's execution or continue the execution uninterrupted as the REX also handles the time management function of the processor that has been allocated to the process. That is why, moreover, this application goes on requiring, in claim 2, that the process class call a lock procedure during the execution such that the process executed without interruption until the execution time slice associated with the process class is expired or beyond the expiration of the execution slice, otherwise, because of Lotito's other reason, the termination of the process execution will occur because of some external hardware interrupt.

Referring to claim 21,

Claim 21 is a claim to a machine which performs the steps of the method of claim 1. Therefore, claim 21 is rejected for the reasons set forth above paragraph 4 for claim 1.

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With respect to the definition of rights and priorities as part of the process association of claim 21, see Lotito, col.102, lines 54-68 and col.110, lines 11-27.

Referring to claims 2-8, 11,12, 25-26, 28-31,

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2-8, 11,12, 25-26, 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lotito (US 4,625,081) in view of Frank et al. (hereinafter Frank) (5,790,851).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

The reference Frank, in addition to the information provided in the previous office action, clearly teaches that the operating system is informed of a process need for shared resource by receiving "a lock call from the process." (col.1, lines 54-55). The reference goes on teaching that this lock call specifies that a lock is desired over a particular shared resources by the process. (call a lock procedure by the process). Also, the reference goes on teaching that, in this fashion, global access synchronization is

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maintained between the various processes over the shared resource. (col.1, lines 56-62).

Referring to claims 9,10 and 27,

6. Claims 9,10 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lotito (US 4,625,081) in view of Frank (US 5,790,851) as applied to claims 2-8, 11,12, 25-26, 28-31 above, and further in view of Gans et al. (hereinafter Gans) (US 5,835,762).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Keeping in mind the teachings of Lotito and Frank, Frank does not teach setting lock flags at the locking instances and at the unlocking instances, and assigning flags the indicative values. Lotito teaches flags as being two types, one of which is binary (Boolean), col.110, lines 25-40. Gans teaches flag field which can contain any number of flags to further define a process instance, col. 6, lines 1-2. Gans also teaches the flag field is used to specify the desired state (of the process) during the designated time, col. 7, lines 32-33. Gans further goes on explaining, by giving an example, the flag value that may indicate the state of a process. Col.7, lines 33-40. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to modify Frank and set lock flag with the values indicating the states of the process; that

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is a first value when the process is declared locked and a second value when the process is unlocked. And as Gans teaches the value is indicative of the desired state during the designated time, which can be easily represented by variables such as binary (Boolean) variables as taught by Lotito.

Referring to claims 13, 14, and 22-24,

7. Claims 13, 14, and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lotito (US 4,625,081) as applied to claims 1 and 21 above, in view of Elnozahy (US 6,421,701).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As previously stated, the reference Elnozahy teaches the scheduling, counter and counter initialization by a scheduler. The reference Lotito teaches, in stated above, that each process requests of the processor hosting it the computational and other resources required for execution. (process requires the resources for a certain time until its execution is considered complete) (col.43, lines 62-64). REX manages the allocation of its processing resources to each process. (defining the execution time slice as required by the process) (col.43, lines 67-68 and col.44, lines 1-2, col.20, lines 33-44)). Lotito goes on teaching that the processor remains dedicated to executing that program until control is either voluntarily relinquished back to REX or some external

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hardware interrupt occurs. (col. 44, lines 8-11). Therefore, Lotito teaches of the choices that are afforded to the REX and the executing process whether to terminate the process before the completion of its execution or continue the execution uninterrupted as the REX also handles the time management function of the processor that has been allocated to the process. Thus, combination of these references is intended to bring the scheduling based upon an execution time slice taught by Lotito by replacing the instruction slice taught by Elnozahy to make sure that processes do not monopolize resources.

Referring to claims 15- 20 and 32-36,

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 15- 20 and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lotito (US 4,625,081) in view of George et al. (hereinafter George)(US 5,768,572).

As previously indicated, Lotito teaches REX performing the setting and resetting of the programmed interval timer, and by loading the programmed interval timer with the appropriate count, REX selects a time interval requested by a process (col. 109, lines 53-68 and col.110, lines 1-9.) where each process is associated with a process class.

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Lotito also teaches REX has the process scheduling and dispatching functions (col.49, lines 52-54). Lotito teaches that REX alone controls the programmed interval timer satisfying the various timing requirements of individual processes. A process can explicitly or implicitly request that an interval timer be created (col.109, lines 8-15). REX maintains the event control blocks on this timer list in chronological order by expiration time. (col.109, lines 27-29). Lotito does not teach to queue processes in a wait state until a predetermined process removal time has expired and adding a new processes to the queue. The reference George teaches the timer queue being used to queue processes in a wait state until a predetermined process removal time has expired, where a variable for storing the process storage time in the timer queue is defined. (Fig.2, element T1 201). The reference teaches to periodically examining the variable by clock-ticking approach.(Col.2, lines 62-65) by comparing to the current time.(Periodically, examining the variable without generating a system interrupt to determine whether the time stored in the variable is less than or equal to an instant system time.)The reference also teaches that each TCB which expires on or before the current time is dispatched for execution.(col.3, lines 7-8)(removing each process from the timer queue which has an associated removal time that is less than or equal to the instant system time). The reference also teaches if the clock-tick interval were 5 ms. and the TCB linked-list contained entries expiring at 10 ms, 3ms, 1ms, 20ms; after the next clock-click the list would contain 5ms and 15 ms.(col.3, lines 10-14)(re-computing a time at which a next process is to be removed from the timer queue and storing the recomputed time in the variable.) The reference teaches that process addition to the

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timer queue by computing a delay time specified by the process (Fig.1, $T_c + x + Q$ 114), comparing the computed delay time with the time stored in the variable, if the computed delay time is less than the delay time stored in the variable, replacing the delay time stored in the variable; and adding the process to the timer queue.(col.2, lines 45-52). The reference teaches on successive timer expiration (removal of the process) , the new timer is set (allocating a timer block of wait before execution that is ready queue) according to the value of first TCB (re-ordering the timer queue which also happens to be placing processes from timer queue into a ready queue for execution) (col. 2, lines 53-54). The reference also teaches the RTP process supporting four types of timers including re-fifo (reordering) and as executed in the order as desired. Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention was made to enhance Lotito's REX by adding George's RTP process such that the processes can be scheduled for execution efficiently in a multi-processor environment where generally the number of competing processes is greater than the number of available processors as taught by George. Thus, using the timer control mechanism to control the events to be taken place in the multi-processor environment provides high performance network of processors as taught by George.

Referring to Claims 32,33,34,35 and 36,

Claims 32,33,34,35 and 36 are claims to a machine which performs the steps of the methods of claims 15,16,17,18 and 19. Therefore, claims 32,33,34,35 and 36 are rejected for the reasons set forth in above paragraph 17 for claims 15,16,17,18,19 and

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20. With respect to the definition of scheduler as part of the claims 34, 35 and 36, see paragraph 15 for claims 13 and 14.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashok B. Patel whose telephone number is (703) 305-2655. The examiner can normally be reached on 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A Follansbee can be reached on (703) 305-8498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Abp



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